

CGGGGGAGTGGGAGGAGGGGG CGGCGCAGCCATGGAGGCCAAGTGGACCGGTCTCTGTCCAGGACGAAGCATCCCCAT 90
 M E A N W T A F L F Q A H E A S H 17

CACCAACAGCAGGCAGCGCAGAACAGCTTGCTGCCCCCTCTGAGTTCTGCTGTGGAGCCCCCTGATCAGAAACCGTTGCTTCCAATACCA 180
 H Q Q Q A A Q N S L L P L L S S A V E P P D Q K P L L P I P 47

ATTACTCAGAAACCTCAGGCTGCACAGAACATTAAGGATGCCATTGGGATTAAGAAAGAAAAACCCAAACTTCGTTTGTGTGCACT 270
 I T Q K P Q A A P E T L K D A I G I K K E K P K T S F V C T 77

TACTGCAGTAAAGCATTAGGACAGCTATCACCTGAGGCGCCATCAGTCTGCCACACAGGGATCAAGTTGGTGTCTCGGGCAAGAAA 360
 Y C S K A F R D S Y H L R R H O S C H T G I K L V S R A K K 107

ACCCCAACAGCGGTGGTTCCTTATCTCCACCATTTGCTGGGACAGCAGCGCAACTTCGTTGGTTCAACTATTGCAGGCATCTGTCTA 450
 T P T T V V P L I S T I A G D S S R T S L V S T I A G I L S 137

ACAGTCACTACATCTTCTCGGGACCAACCCAGCAGCAGCGCTAGTACCACAGCAATGCCTGTGCCCGAGTCTGTCAAGAAACCCAGT 540
 T V T T S S S G T N P S S S A S T T A M P V P Q S V K K P S 167

AAGCCTGTCAAGAAAGAACCGCTGTGAGATGTGTGGGAAGGCTTCGGGATGTGTACCACTCAATCGGCACAGCTCTCCCATTCG 630
 K P V K K N H A C E M C G K A F R D V Y H L N R H K L S H S 197

GACGAAAGCCCTTTGAGTGTCTATTGTGAATCAGCGCTTCAAGAGGAAGGACCGGATGACTTACCATGTGAGGTCTCATGAAGGAGGC 720
 D E K P F E C P I C N O R F K R K D R M T Y H V R S E E G G 227

ATCACCAACCCCTATCTTGCAGTGTTTGTGGGAAAGGCTTCTCAAGGCTGACCACTAAGCTGTCAATGTAAACATGTGCATTCAACA 810
 I T K P Y T C S V C G K G F S R P D H L S C H V K H V R S T 257

GAAAGACCCCTTCAATGCCAAACGTGCACTGCTGCCCTTGGCCACCAAGACAGACTACGGACACACATGGTGGCCACGAAGGCAAGGTA 900
 E R P F K C O T C T A A F A T K D R L R T H M V R H E G K V 287

TCATGTAACTCTGTGGGAAGCTCTTGTGTGAGCATATATACAGCCACTTAAAGACACATGGGCAGAGCCAAAGTATCAACTGTAAAC 990
 S C N I C G K L L S A A Y I T S H L K T H G Q S Q S I N C N 317

ACGTGCAAAACAGGCATCAGCAAAACGTGATGAGTGGAGAGCAGCAATCAGAAGCAGCAGCAGCAGCAGCAACAGCAGCAGCAG 1080
 T C K Q G I S K T C M S E E T S N Q K Q Q Q Q Q Q Q Q Q Q 347

CAACAACAACAACATGTGACAAGCTGGCCAGGGAAGCAGGTAGAGACACTGAGACTGTGGGAAGAAGCTGTCAAGCAAGAAAGAAAGAA 1170
 Q Q Q Q H V T S W P G K Q V E T L R L W E E A V K A R K K E 377

GCTGCCAACCTGTGCCAAACCTCCAGGCTGTACGACACAGTGAAGTCTCACTACTCCATTCAATATAACGTCCTCTGTGTCTGTGGG 1260
 A A N L C Q T S T A A T T P V T L T T P F N I T S S V S S G 407

ACTATGTCAAACCCAGTCAAGTGGCAGCTGCAATGAGCATGAGAAGTCCAGTAAATGTCTCAAGTGCAGTTAACAATACAGCCCTTAA 1350
 T M S N P V T V A A A M S M R S P V N V S S A V N I T S P L 437

GCCATGACCTCACCTTTAACTACTACCAACCCAGTCAACCTCCCCACCCCTGTGACCGCCCCAGTGAATATAGCACACCTGTCAACATC 1440
 A M T S P L T L T T P V N L P T P V T A P V N I A H P V T I 467

ACATCTCAATGAACCTGCCACTCTATGACATTAGCTGCCCTCTCAATATAGCAATGAGGCTGTAGAAAGTATGCCTTTCTTGCCC 1530
 T S P M N L P T P M T L A A P L N I A M R P V E S M P F L P 497

CAAGCTTTGCTACGTCACCGCTTGGTAAACAGTATTATAAGTCAAAATTTGGGTTAAAGTAATATTACCAGCAACTTAACCTTAGTT 1620
 Q A L P T S P P W 506

GATTAAAGCAAAAGCAGACTATGAAATGGGAGGTTTATTATGTAGTTAATAGAGTGTAGTAGCTCCAATTTTGTCTGGGGTTGTTT 1710
 AAAGTAGGGTATATGTAACTTATCACTGGACCACTTTAGTTTACTCAGAAACCCCTTTAGCTGACACCATTTGCTTAAACAGGATAGTA 1800
 GCTGGCAAGACGAAATGGCCAGAAATTAACCAATCATAAACCCATTTCAAAATTAAGAAAGCATTATTGTTTATTATATTATTTAAAT 1890
 ACAACAGAAATCATTTTATTGTAACACTAGCAGAGTTCTTCCCTCTGTACAGGTTGACCGGTTTAACTTGGAGCTCAAGCCACAGACT 1980
 GAGAGCTAGTGTAGCATTGTCTGTGTTTGTCTGTATGAGTGAACAGAGGCAATGTCTATAAATATGCAATTTAGAGAAATATGCATTT 2070
 TACCTTTGGGAATATGTTAATTTAGGCAGCATTCCCTATGGGAAAGGTGATACAGCTCTGATATGCAAGCATATGATAATTTATCAT 2160
 TCTAAGTTCAACATATAATAGGATTTGTGACCTGATATTGGAGATGTAATATTGCTCAGCATATTAACTCCCTGATGGAATATAGCATT 2250
 GTAGTTGACTTTTAAAAAAGGAAAGGAAAGGAAAGGAAAGGAAAGGAAAGGAAAGGAAAGGAAAGGAAAGGAAAGGAAAGGAAAGG 2340
 GGTGGCTTCAGAACCCAGGAAGTGGCAAGGGGCACAGACTCTGTGGAGGCTGAGCGGGGGTTCCATAGGAGACTGACAGGAGACAT 2430
 TTTGCTTAGGGCCACAAAAGAGAGGCTACCCCACTTACAGATGCAGACCATGTGGGGCTCCGGAGAACTGCTTGTAGCATGTTTCT 2520
 AGTGTGGCAGCAGATGGTACTACTGAGCATGTCTACAGACCCAGTCTGAGAGTGTACTGTGGGGATTTCCGGAGGTTCCATCTCGGA 2610
 GACCTTTGTGACGCGTGTATACAGCCTTACCTCACCACTTGGCAGGACACAGAGCCTGCAGCACCTACCGAACCATCTACCGGACTGC 2700
 CTATCGCGTAGCCCTGGGGTGAATCCCGAAGGCTCGCTATGCTTGGCTGGCTGGGTTGGAAGAGGACAGTGGGGCTCCCTGGGGCTTG 2790
 TGGAGCAGCAATATGCCAGCTTCCATGTGGGAATGGAGGGAGTTATCCGCGCAGGACACTGCGGCTGCGCTGTGGATGGCAGGAGATA 2880
 CTGTCCAGACAGATGTGTGTAATGCAGTACAGGAGAGGCGAGTTGTCGCGCGCTGTGTCAATACTGTGGGAAGTTACTGGTGCCAGG 2970
 GATGGGAGGGGACAAAGCCCATCTGCAGATGGGACCCCTGCTGTCTAAGGAGGGGCGCTCCCTTTCCCCCACAACCCACAGCAGGAG 3060
 TGGACAGCATGGCGAGAGAGGAGGTGTACAGGCTGCAGGCTCGGGTTGATGTGCTAGAACAGAACTGCAGTTGGTGTGCCCCCACTGC 3150
 ACAGCTCGGCTCTCGGTCACAGAGCATGGGCTACAAGATCCTGGCAGCTGTGCTGTCTCTTGGAGGAACATCTCGGGTCTCTGTG 3240
 AGTCCCAAGACACCACTCCACCCACAGAGGCTAGGGGACCCATGGGGTGGACACAGGGCTGGGTGGATGGAACCTCTCTCTGGGAT 3330
 GGGCAGATTTGCAAGTTTACACCTTTTCT 3420
 TAGAGCAGTATCCAGATCCCTTGTAGCCAGAGTTCAGGAGCGCTGTCTGTGGTGGCTATGAGCAGAAAGCCCTGCTCATTTGCTCTCT 3510
 TCTTAGGAGGTTCTTAGGACTTGGGTATGGGAGTGGGGTCTTGTGTGACTTTCAGTGGGGCTCCCTGTCTAAGTGGTAAGGTGGGGAT 3600
 TGTCTCCATCTTTGTCTATAATAAGCTGAGACTTGAAGAAAAA 3645

FIGURE 1.

3/2/00 (Hall) 2 of 10

FIGURE 2.

Human DB1 DNA and Protein Sequences:

```

      10      20      30      40      50      60
AGCGGGGGGAGTGGGGAGGAGGGGGGTGCGCCGCCGCAGCCATGGAGGCCAACTGGACCG
                                M E A N W T>

      70      80      90     100     110     120
CGTTCCTGTTCCAGGCCCATGAAGCTTCCCATCACCAACAGCAGGCAGCACAGAACAGCT
A F L F Q A H E A S H H Q Q Q A A Q N S>

     130     140     150     160     170     180
TGCTGCCCCCTCCTGAGCTCTGCCGTGGAGCCCCCTGATCAGAAACCATTGCTTCCAATAC
L L P L L S S A V E P P D Q K P L L P I>

     190     200     210     220     230     240
CAATAACTCAGAAACCTCAGGGTGCACCAGAAACATTAAAGGATGCCATTGGGATTAAAA
P I T Q K P Q G A P E T L K D A I G I K>

     250     260     270     280     290     300
AAGAAAAACCCAAAACCTTCATTTGTGTGCACTTACTGCAGTAAAGCTTTCAGGGACAGCT
K E K P K T S F V C T Y C S K A F R D S>

     310     320     330     340     350     360
ATCACCTGAGGCGCCACGAATCCTGCCACACAGGGATCAAGTTGGTGTCCCGGCCAAAGA
Y H L R R H E S C H T G I K L V S R P K>

     370     380     390     400     410     420
AAACCCCCACACGGTGGTTCCCCTTATCTCTACCATCGCTGGGGACAGCAGCCGAACCT
K T P T T V V P L I S T I A G D S S R T>

     430     440     450     460     470     480
CGTTGGTCTCGACCATTGCAGGCATCTTGTCAACAGTCACTACATCTTCCTCGGGCACCA
S L V S T I A G I L S T V T T S S S G T>

     490     500     510     520     530     540
ACCCAGTAGCAGTGCCAGCACACAGCTATGCCAGTGACCCAGTCTGTCAAGAAACCCA
N P S S S A S T T A M P V T Q S V K K P>

     550     560     570     580     590     600
GTAAGCCTGTCAAGAAGAACCATGCTTGTGAGATGTGTGGGAAGGCCTTCCGAGATGTGT
S K P V K K N H A C E M C G K A F R D V>

     610     620     630     640     650     660
ACCATCTCAATCGACACAAGCTCTCCCATTCAGATGAGAAACCCTTTGAGTGTCTTATTT
Y H L N R H K L S H S D E K P F E C P I>

     670     680     690     700     710     720
GTAATCAGCGCTTCAAGAGGAAGGACCGGATGACTTACCATGTGAGGTCTCATGAAGGAG
C N Q R F K R K D R M T Y H V R S H E G>

     730     740     750     760     770     780
GCATCACCAAACCTATACTTGCAGTGTTTGTGGGAAAGGCTTCTCAAGGCCTGACCACT
G I T K P Y T C S V C G K G F S R P D H>

```

202710-162500F

FIGURE 2 (CONT)

790 800 810 820 830 840
 TAAGCTGTCATGTAAAACATGTCCATTCAACAGAAAGACCCTTCAAATGCCAAACGTGCA
 L S C H V K H V H S T E R P F K C Q T C>

850 860 870 880 890 900
 CTGCTGCCTTTGCCACCAAAGACAGACTGCGGACACACATGGTGCGCCATGAAGGCAAGG
 T A A F A T K D R L R T H M V R H E G K>

910 920 930 940 950 960
 TATCATGTAACATCTGTGGGAAGCTCCTGAGTGCAGCATAACATCACCAGCCACTTAAAGA
 V S C N I C G K L L S A A Y I T S H L K>

970 980 990 1000 1010 1020
 CTCATGGGCAGAGCCAAAGTATCAACTGTAATACATGTAAACAAGGCATCAGTAAAACAT
 T H G Q S Q S I N C N T C K Q G I S K T>

1030 1040 1050 1060 1070 1080
 GCATGAGTGAAGAGACCAGTAACCAAAAGCAGCAGCAGCAGCAGCAGCAACAACAAC
 C M S E E T S N Q K Q Q Q Q Q Q Q Q Q>

1090 1100 1110 1120 1130 1140
 AACAACAACATGTGACAAGCTGGCCAGGGAAGCAAGTAGAAACACTCAGACTGTGGGAAG
 Q Q Q H V T S W P G K Q V E T L R L W E>

1150 1160 1170 1180 1190 1200
 AAGCTGTAAAGCAAGGAAGAAAGAAGCTGCTAACCTGTGCCAAACCTCCACGGCTGCTA
 E A V K A R K K E A A N L C Q T S T A A>

1210 1220 1230 1240 1250 1260
 CGACACCTGTGACTCTCACTACTCCATTTCAGTATAACATCCTCTGTGTCGTCTGAGACTA
 T T P V T L T T P F S I T S S V S S E T>

1270 1280 1290 1300 1310 1320
 TGTCAAACCCAGTCACAGTGGCAGCTGCAATGAGCATGAGAAGTCCAGTAAATGTTTCAA
 M S N P V T V A A A M S M R S P V N V S>

1330 1340 1350 1360 1370 1380
 GTGCAGTTAACATAACCAGCCCAATGAACATAGGGCATCCTGTAACCTATAACCAGTCCAT
 S A V N I T S P M N I G H P V T I T S P>

1390 1400 1410 1420 1430 1440
 TATCCATGACCTCTCCTTTAACTCACTACCCAGTCAACCTCCCCACCCCGTCACTG
 L S M T S P L T L T T P V N L P T P V T>

1450 1460 1470 1480 1490 1500
 CCCCAGTGAATATAGCACACCCTGTCACCATCACATCTCCAATGAATCTACCCACACCTA
 A P V N I A H P V T I T S P M N L P T P>

1510 1520 1530 1540 1550 1560
 TGACATTAGCCGCCCTCTCAATATAGCAATGAGACCTGTAGAGAGCATGCCTTTCTTGC
 M T L A A P L N I A M R P V E S M P F L>

10053291-011703

FIGURE 2 (cont)

1570 1580 1590 1600 1610 1620
 CCCAAGCTTTGCCTACATCACCGCCTTGGTAAACAGTATTATAAAATCAAAATATGGGTA
 P Q A L P T S P P W *>

1630 1640 1650 1660 1670 1680
 AAAGTAAATATTTACCAGCAACTTAACCTTTAGTTGATTAAAGCAAAAAGTAAACCATGA

1690 1700 1710 1720 1730 1740
 AATTGGGAGATTTTATTACATTAGTTAATAAGAGTGTGGTAGCATTTTTCTCCAATTTGG

1750 1760 1770 1780 1790 1800
 CTGGGATTATTCAAAGTAGGGTGTGTATGTAACCTTATCACTGGACCACTTTAGTTTAATC

1810 1820 1830 1840 1850 1860
 AGAAATTCCTTTTAGCTGACAACATTGCTTAAACAGGATAGTAGTTGGCAAGATGAAATG

1870 1880 1890 1900 1910 1920
 CCAGAATTAACCAATCATAAGTAGAACCCACTTCAAAATAAAAAACAGCATTACTAT

1930 1940 1950 1960 1970 1980
 TTCTAATCCCAAGGAATCACTTTATTGTAAACACTAGCAGAACTCTTCTCCCTATACAAG

1990 2000 2010 2020 2030 2040
 GTGGATGGCTGATTTTAACCTGAAATTTTAAATCCACAGATTGAGAGCTAGTGTAGAATT

2050 2060 2070 2080 2090 2100
 GTCTGTGTTTATTGTTTTTATGAGTAAATACATGCATTGTCATAATAAAATGCATTTTCAG

2110 2120 2130 2140 2150 2160
 AGAATATGCATTTTACCTTTGGGAATATGTTAATTTTCAGGCAGCATTCCTATGGGAAAG

2170 2180 2190 2200 2210 2220
 GTGATACCAGCTCTGATATGCAAAGCATATGATAATTTATCATTCTAACTTCAACGTATA

2230 2240 2250 2260 2270 2280
 ATAGGGATTGTGACCTGATATTTGGAGATGTAAATATTGCTCAGCATATTAATCCCGATG

2290 2300
 GAATATAGCATTGTAGTTGACTTTTT

10053291.011702

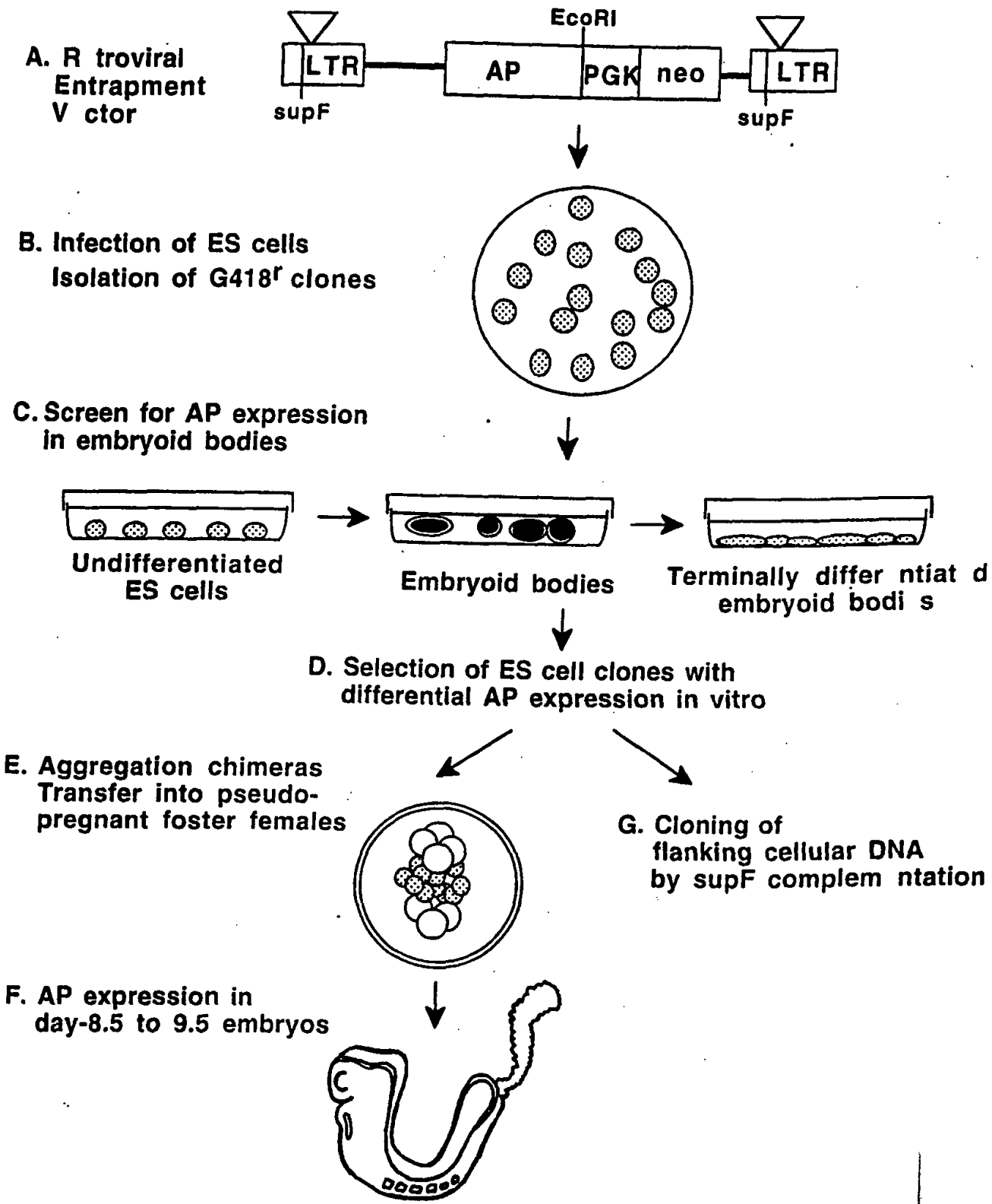


FIGURE 3.

202710-162E500T

20270" T6250T

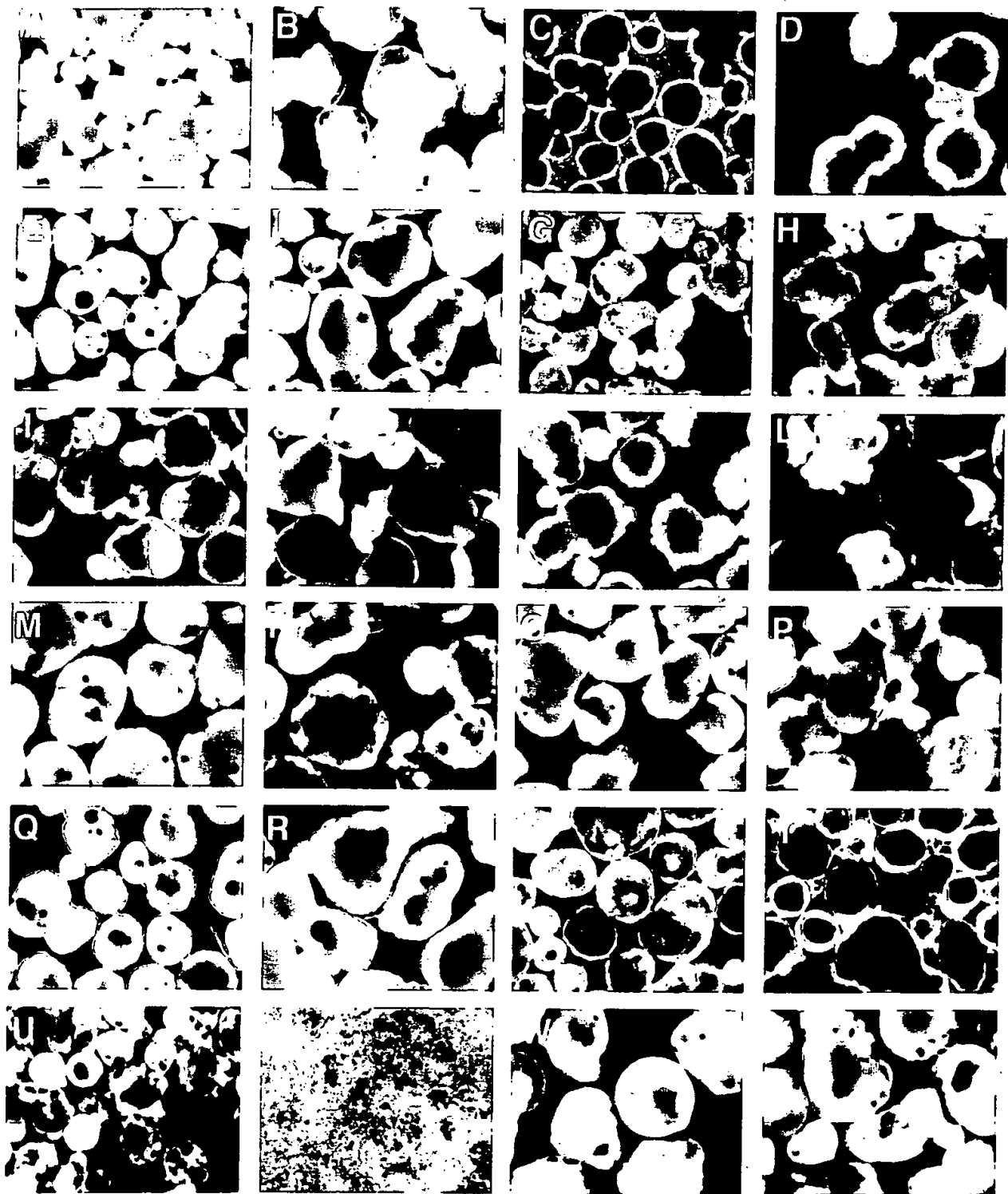


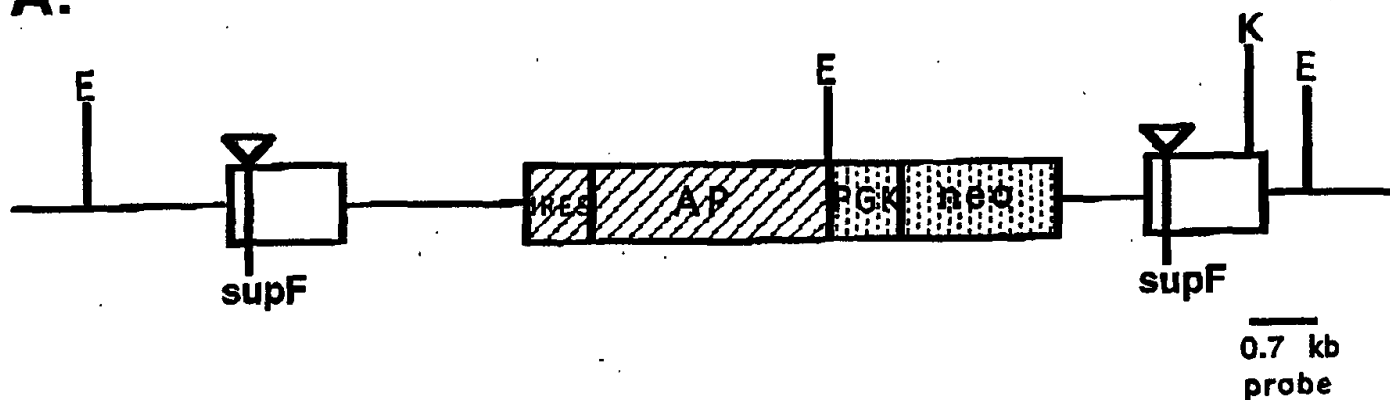
FIGURE 4.



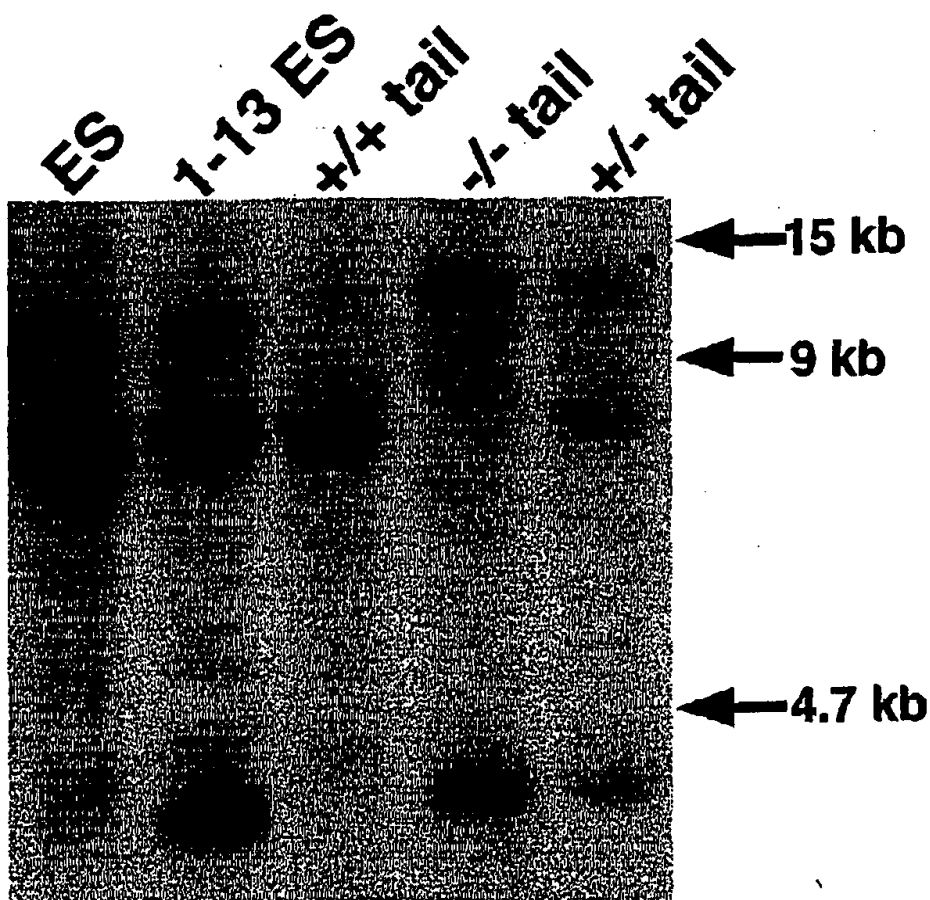
FIGURE 5.

FIGURE 6.

A:



B:



202770-1622500T

Alignment of vezfi/mPuri:

FIGURE 7.

(a) 26 tons) 3/20/8

202710" T6EE500T

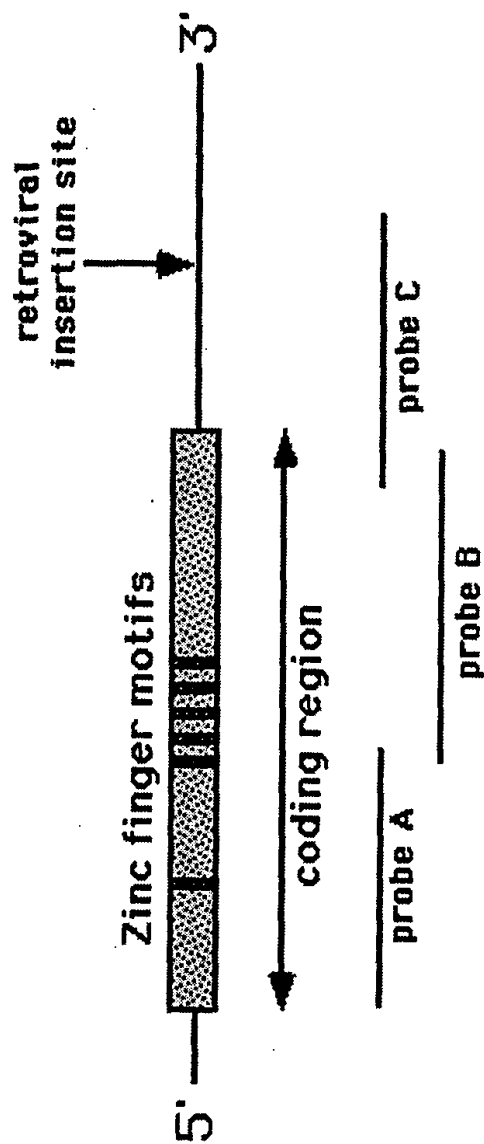


FIGURE 8.

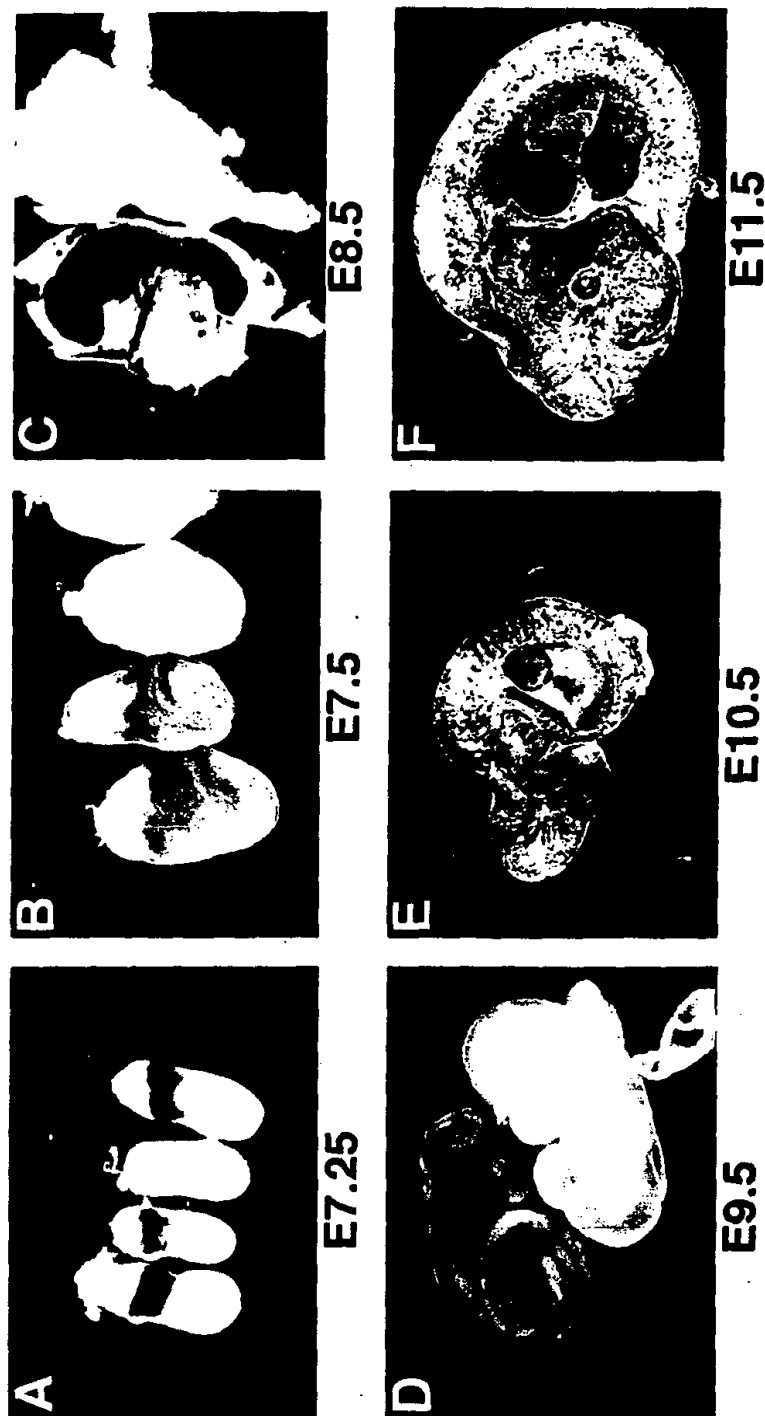


FIGURE 9

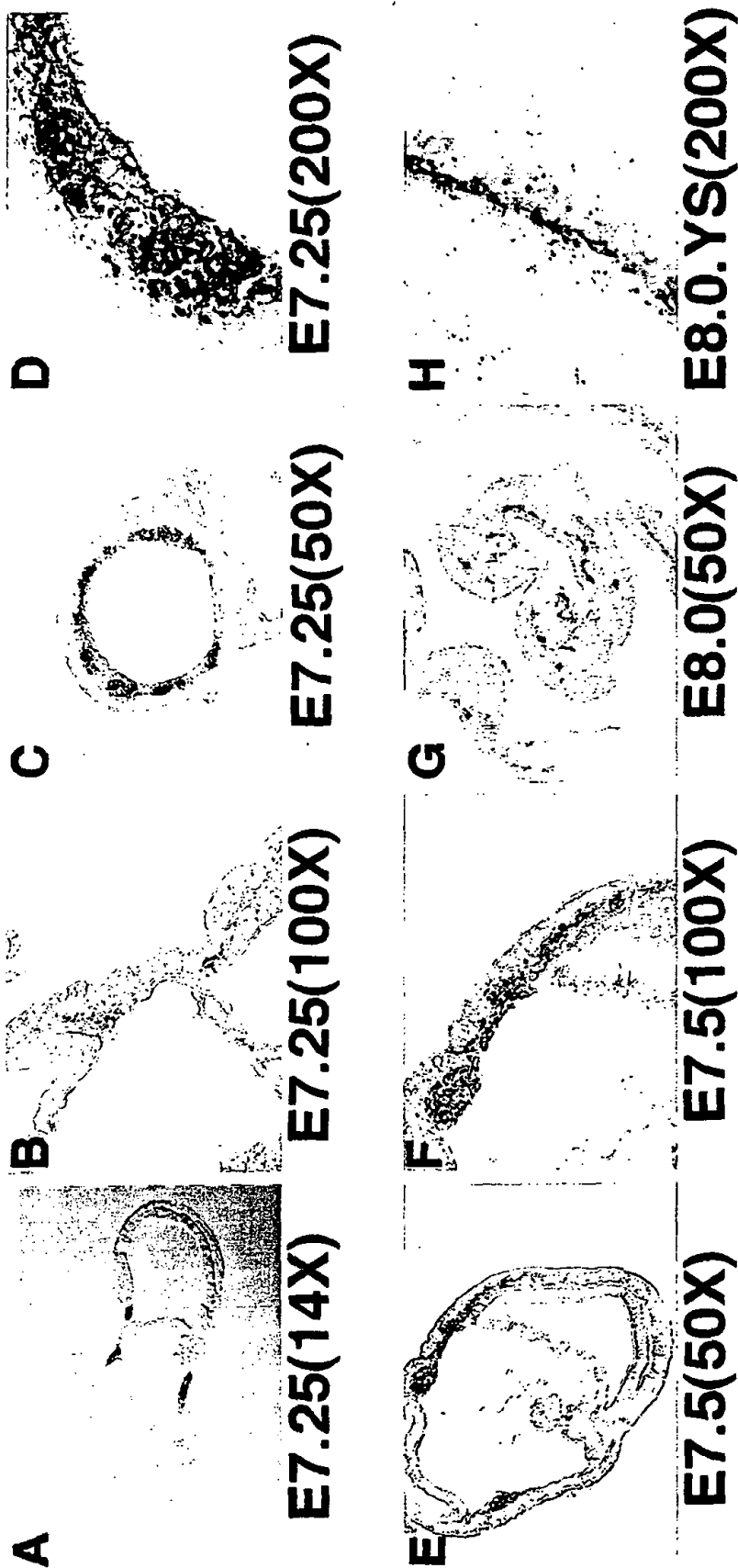


FIGURE 10.

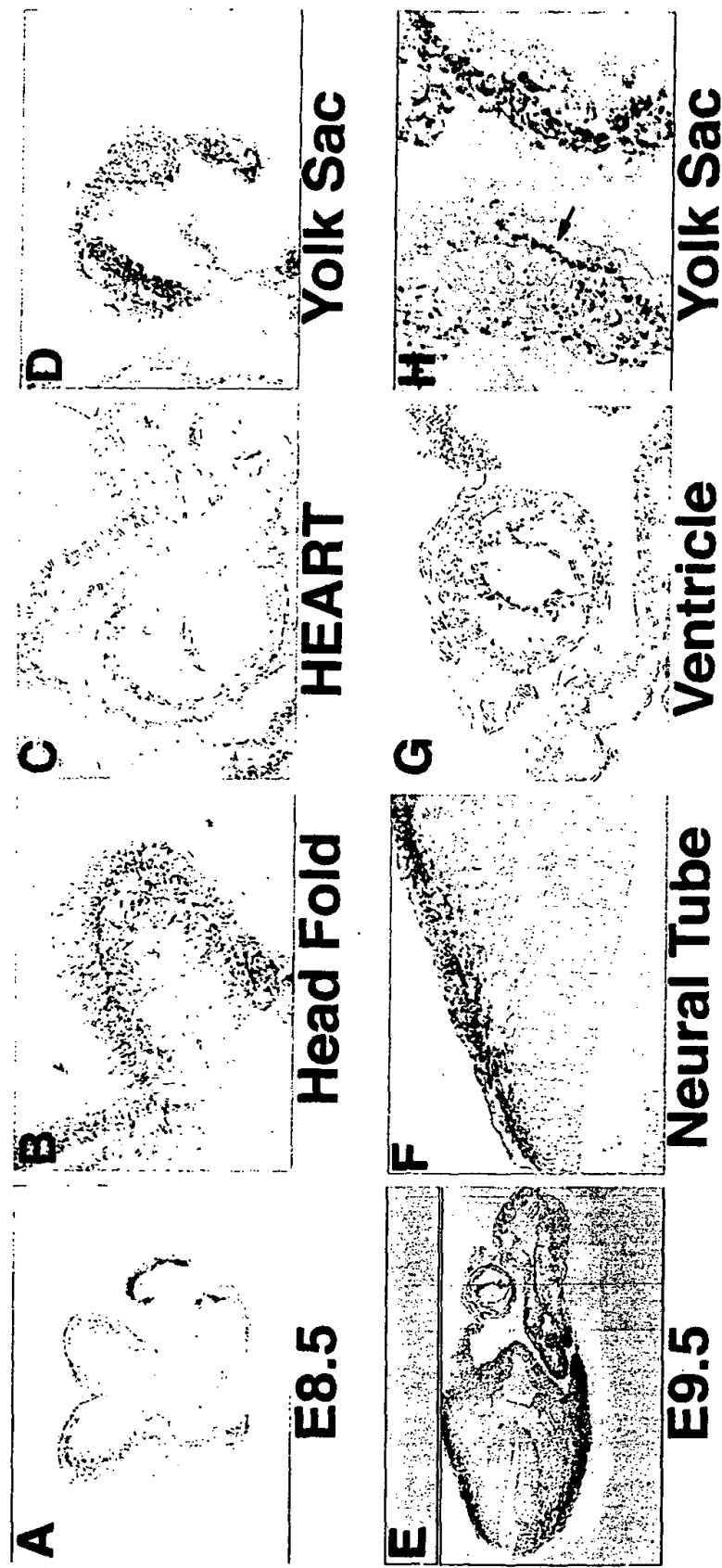


FIGURE 11.

202410" T62E500T

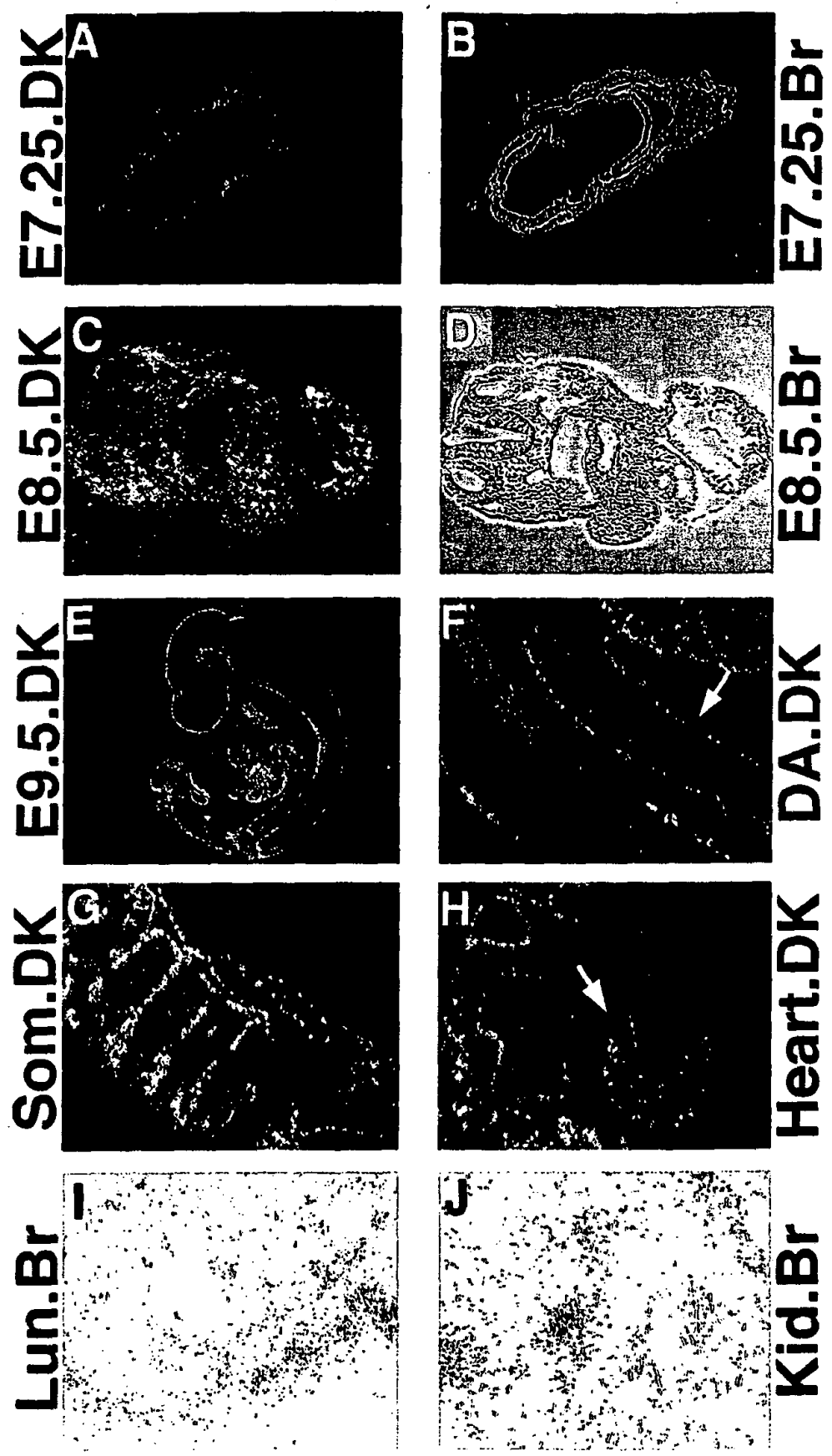


FIGURE 12.

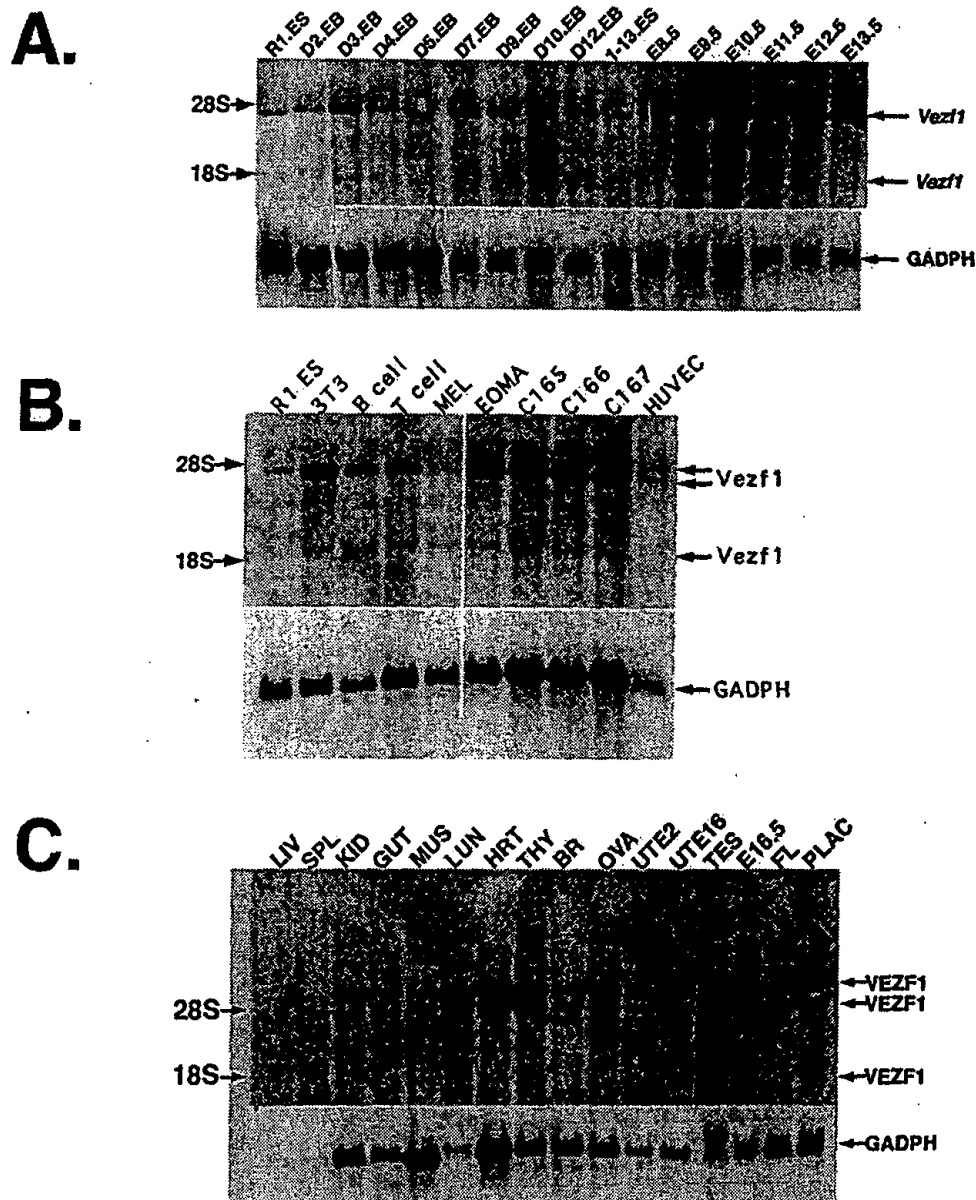


FIGURE 13.

Slc 30 (Sheet 10 of 20)

20270" T62E600T

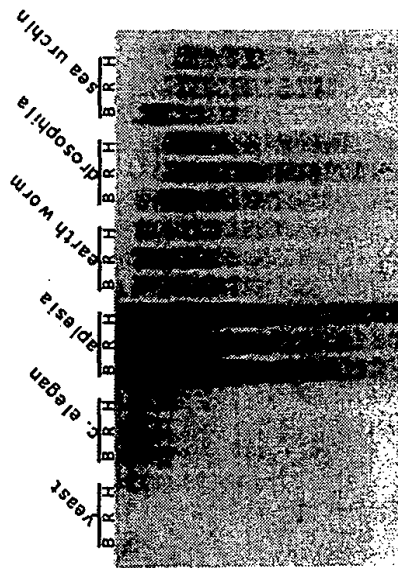
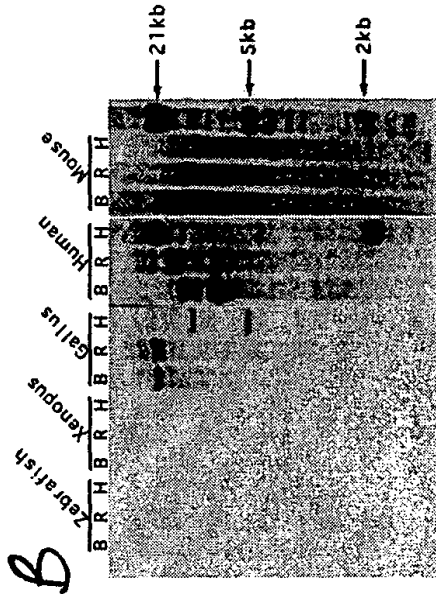
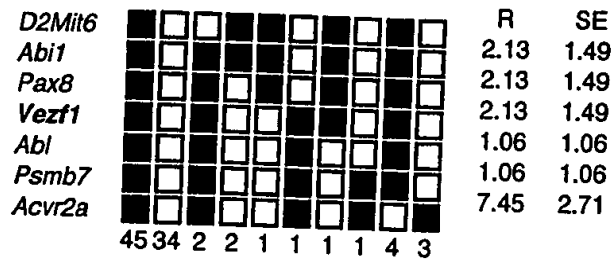


FIGURE 14.

A: Jackson BSS Chromosome 2



B: Jackson BSS Chromosome 2

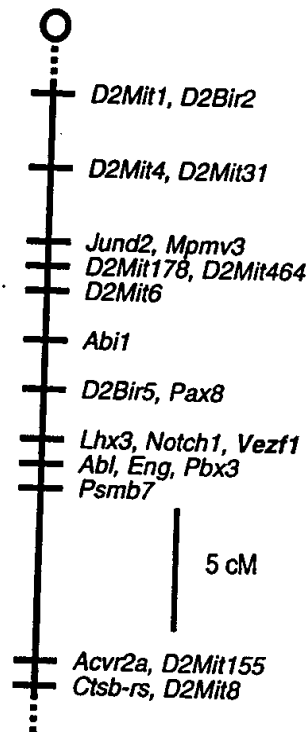
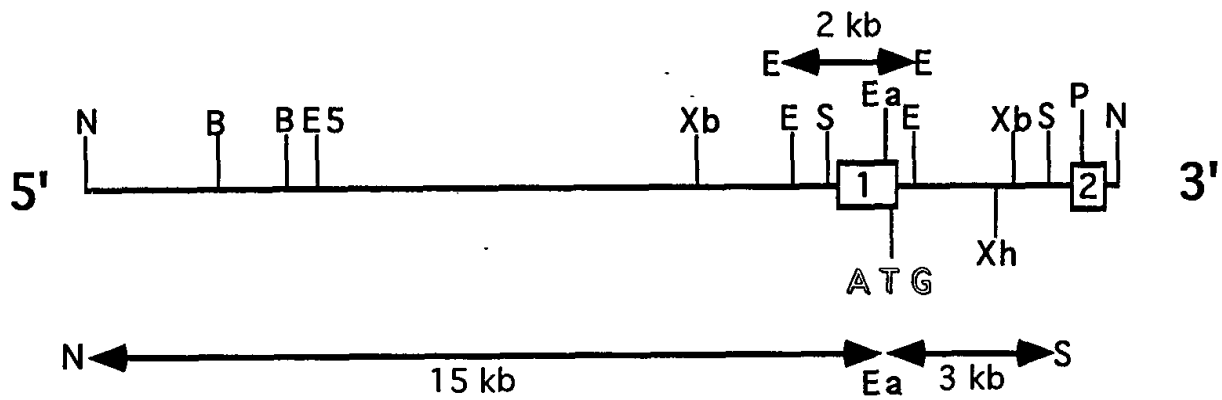


FIGURE
15.

Restriction Enzyme Map of a 20 kb Genomic DNA of the Vezf1 Gene



BamHI (B), EcoRI (E), EcoRV (E5), EagI (Ea), NotI (N), PstI (P), SacI (S), XbaI (Xb), and XhoI (Xh).

— Intronic sequence;

1 Exon 1

2 Exon 2

FIGURE 16.

200 (Sheet 19 of 20) Vezf1 EXPRESSION VECTORS

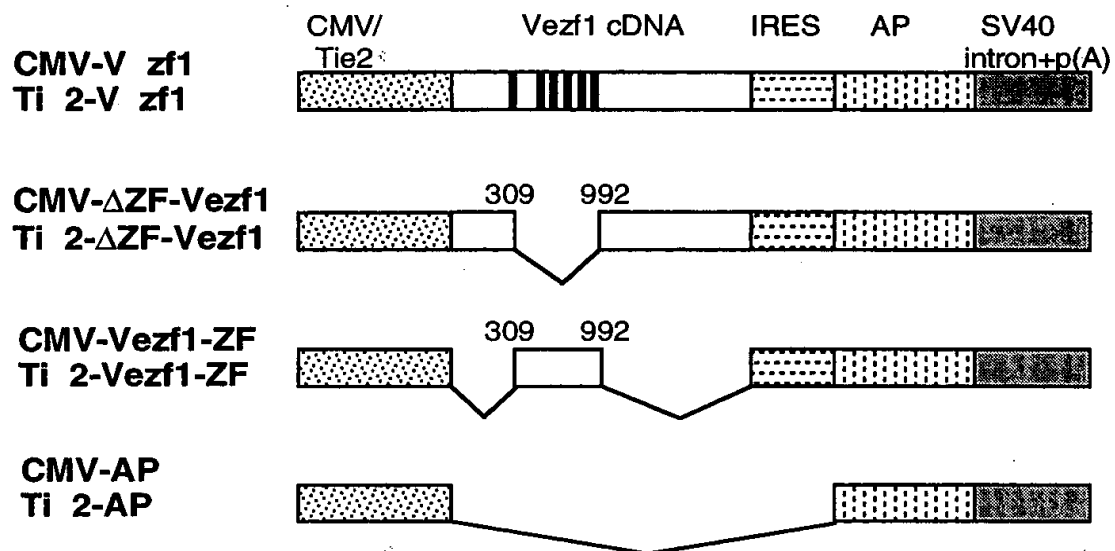


FIGURE 17.

204710-162500

[Handwritten mark]

01270 (Sheet 20/20)

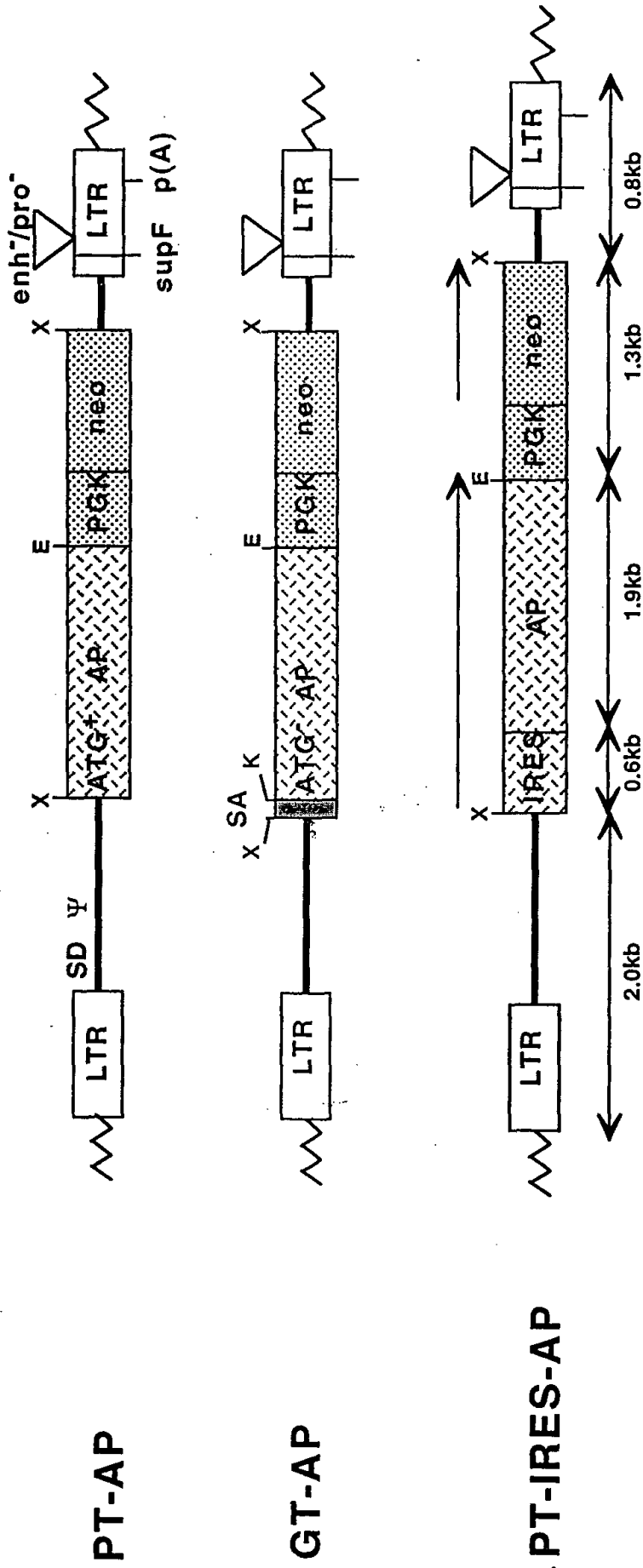


FIGURE 18.